UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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REALTIME DATA, LLC d/b/a IXO,   :

                                             :   11 Civ. 6696 (KBF)

                    Plaintiff,   :   11 Civ. 6701 (KBF)

                                             :   11 Civ. 6704 (KBF)

          -v-   :

                                             :   OPINION AND ORDER

MORGAN STANLEY, et al.,   :

                                             :

                    Defendants.   :

-- X

REALTIME DATA, LLC d/b/a IXO,   :

                                             :   11 Civ. 6697 (KBF)

                    Plaintiff,   :   11 Civ. 6699 (KBF)

                                             :   11 Civ. 6702 (KBF)

          -v-   :

                                             :

CME GROUP INC., et al.   :   OPINION AND ORDER

                                             :

                    Defendants.   :

-- X

REALTIME DATA, LLC d/b/a IXO,   :

                                             :   11 Civ. 6698 (KBF)

                    Plaintiff,   :   11 Civ. 6700 (KBF)

                                             :   11 Civ. 6703 (KBF)

                                             :

          -v-   :

                                             :   OPINION AND ORDER

THOMSON REUTERS, et al.   :

                                             :   (MARKMAN)

                    Defendants.   :

-- X

KATHERINE B. FORREST, District Judge:

     Plaintiff Realtime Data, LLC ("Realtime") brought nine

lawsuits asserting patent infringement against approximately 18

separate defendants. The defendants break down into three

general groups: (i) major financial institutions including

Morgan Stanley, Bank of America Corporation, Credit Suisse

Holdings (USA), Inc., The Goldman Sachs Group, HSBC Bank USA,

N.A., JP Morgan Chase & Co., etc.; (ii) stock exchanges and other trading platforms such as the entities that form what is colloquially known as the New York Stock Exchange ("NYSE") (e.g., NYSE Euronext, NYSE Arca), entities that make up what is colloquially known as the NASDAQ (e.g., Nasdaq OMX PHLX, Inc.), the Chicago Mercantile Exchange, New York Mercantile Exchange, Inc., International Securities Exchange, etc.; and (iii) companies who the Court refers to as "market information" companies and who are in the business of providing financial information to, inter alia, companies in the first two categories of defendants, such as Thomson Reuters, Bloomberg, L.P., Interactive Data Corporation, etc. The Court refers to the defendants across all nine actions collectively as "defendants." Defendants together have moved for the construction of certain terms used in the claims they are alleged to have infringed.

Plaintiff has asserted that defendants are, individually or collectively, infringing on 49 claims across three patents: U.S. Patent Nos. 7,714,747 ("the '747 Patent"), 7,777,651 ("the '651 Patent"), and 7,417,568 ("the '568 Patent" and with the '747 Patent and '651 Patent, the "patents-in-suit"). All three of the patents-in-suit relate generally to inventions that claim accelerated and reduced latency transmissions of, inter alia,

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financial data using certain data compression and decompression techniques.

On June 2, 2010, these nine lawsuits were consolidated pursuant to Rule 42(a) of the Federal Rules of Civil Procedure. (Dkt. No. 186.) Discovery closed on June 4, 2012, and the matter is scheduled for trial on November 26, 2012. (Dkt. No. 396.)

Before the Court are the parties' requests for claim construction. Defendants and plaintiff have requested that this Court construe 11 terms used in the patents:[1]

1.   data stream, stream of data;

2.   encoder, encode, encoded, encoding;

3.   decoder, decode, decoded, decoding;

4.   data field type[s], data block type[s];

5.   lossless, lossless encoder(s)/decoder(s);

6.   selecting an encoder, the lossless encoders are selected, selecting one or more lossless encoders, select one or more lossless encoders;

7.   content independent data compression;

8.   content dependent data compression;

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[1] Two of the eleven terms/phrases--"content independent/dependent data decompression"--is also the subject of a separate motion for partial summary judgment for failure to comply with the definiteness and written description requirements of 35 U.S.C. § 112. The Court's decision on that motion is the subject of a separate opinion.

9.   descriptor with the encoded data which identifies,

descriptors indicate, descriptor indicates;

10.   content dependent data decompression; and

11.   content independent data decompression.

The Court construes the above terms as set forth below.

DISCUSSION

Certain patents present straightforward, rather uncomplicated construction issues. For instance, this Court was once asked (for a brief time until the Court prevailed on the parties to withdraw their disagreement) to construe what the word "up" meant. However, there are a vast number of technologically complex patents that require a court to construe terms about which proposed experts who have spent decades in the field of, for example, electrical engineering, disagree.

Lingering underneath the proffered definitions of the claims to be construed lay parties' positions with respect to infringement or non-infringement: the addition or elimination of a descriptive word or phrase can make the difference between whether an action taken by a defendant runs afoul of a claim or not. Similarly, the presence or absence of a defining word can make the difference between a claim's validity: whether the claim avoids--or runs headlong--into prior art.

In the context of claim construction, a court must ignore the effect that a particular construction may have on the

outcome of the litigation and, instead, seek the correct construction. This Court has and does proceed with claim construction without regard to the impact constructions will or may have on the merits of the underlying claims in the nine consolidated lawsuits. To do otherwise would be to advertently or inadvertently usurp the role of the fact finder (which in this case is a jury) on the ultimate merits.

I.   LEGAL STANDARDS

     A.   Claims Construction

     Claim construction is a question of law for the court. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995), aff'd, 517 U.S. 370 (1996). Determining the meaning of terms within a claim assists a fact finder in making subsequent and ultimate decisions as to whether an invention has in fact been infringed, or is in fact valid. In construing the meaning of a term, the issue is not what that term would mean to an average lay person, but what that term or phrase would have meant to one "of ordinary skill in the art in question at the time the invention was made." Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005). A court's job is, then, to try and place itself in the position of one of ordinary skill in the art of the invention(s) at issue.

     There is a substantial body of law setting forth the appropriate tools with which a court should work in construing

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claims, the order in which those tools should be utilized, and the weight that should be given to additional resources brought to bear on proffered constructions. A court may use intrinsic--and, if necessary, extrinsic--evidence. See Nazomi Commc'ns, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1368 (Fed. Cir. 2005) (instructing that courts should look first to intrinsic evidence).

Intrinsic evidence includes the claims and specifications in the patent itself, as well as the patent's file history (or wrapper). The single most important source for the meaning of a term is the language of the claim itself--the language of a claim defines the scope of the patent holder's exclusive rights. Phillips, 415 F.3d at 1312. In patents with multiple claims using similar terms, such as the patents-in-suit, it is well accepted that terms in a claim should be construed consistently across claims. Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995) ("[C]laim terms must be interpreted consistently.").

One skilled in the art is "deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Phillips, 415 F.3d at 1313. The specification is the "single best guide to the meaning of a disputed term." Id. at 1315; see also On Demand Machine Corp.

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v. Ingram Indus., Inc., 442 F.3d 1331, 1338, 1340 (Fed. Cir. 2006) ("[T]he scope and outer boundary of claims is set by the patentee's description of his invention" and "the claims cannot be of broader scope than the invention that is set forth in the specification."). However, although specifications contain one or more examples of the embodiment of an invention, they need not contain every possible embodiment; therefore, courts should not read into the claims limitations based on the embodiments in the specification. See Phillips, 415 F.3d 1323; Innogenetics, N.V., v. Abbott Labs., 512 F.3d 1363, 1370 (Fed. Cir. 2008) ("[The defendant] argues that a patent can never be literally infringed by embodiments that did not exist at the time of filing. Our case law allows for after-arising technology to be captured within the literal scope of valid claims that are drafted broadly enough.").

Although terms are generally construed as they would be understood by one of ordinary skill in the art, it is possible for a patentee to have set forth a particular and different meaning for a term within a claim; in such a case, the lexicography of the patentee governs. See, e.g., Silicon Graphics, Inc. v. ATI Techs., Inc., 607 F.3d 784, 789 (Fed. Cir. 2010); Southwall Techs., 54 F.3d at 1578 ("The terms in a claim, however, are not given their ordinary meaning to one of skill in

the art when it appears from the patent and file history that

the terms were used differently by the applicant.").

Several aspects of the patent prosecution history can be of

significant use to a court. First, statements the patentee may

have made in connection with patent prosecution can be binding.

The prosecution history provides evidence of how the patentee

understood and explained his invention to the patent office.

Phillips, 415 F.3d at 1317; see also Kripplez v. Ford Motor Co.,

667 F.3d 1261, 1266-67 (Fed. Cir. 2012) (statements made during

patent prosecution proceedings are binding on the patentee and

can be considered as such during claim construction); Teleflex,

Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1326 (Fed. Cir.

2002)("[T]he prosecution history (or the file wrapper) limits

the interpretation of claims so as to exclude any interpretation

that was disclaimed or disavowed during prosecution in order to

obtain claim allowance.").

In connection with patents that are part of an extended

family of patents, a patentee's disclaimers made during

prosecution are "relevant" both as a statement made with regard

to the patent at issue, but also with regard to related or

"sibling" patents. See Microsoft Corp., v. Multi-Tech Sys.,

Inc., 357 F.3d 1340, 1349-50 (Fed. Cir. 2004). Statements made

by a patentee during a prosecution history prevent claim terms

from becoming ever-changing as the need and situation changes.

See Southwall Techs., 54 F.3d at 1578 ("A patentee may not

proffer an interpretation for purposes of litigation that would

alter the indisputable public record consisting of the claims,

the specification and the prosecution history, and treat the

claims as a 'nose of wax.'").

In addition, the patent examiner is considered to be one of

ordinary skill in the art. See St. Clair Intellectual Prop.

Consultants, Inc. v. Canon Inc., 412 Fed. Appx. 270, 276 (Fed.

Cir. 2011); In re Lee, 277 F.3d 1338, 1345 (Fed. Cir. 2002).

Statements made by the examiner relating to how he or she

understands a certain term are thus intrinsic evidence to which

the court may refer when construing terms.

Extrinsic evidence includes dictionaries used by one of

ordinary skill in the art, treatises and expert testimony in the

form of affidavits or presented live at a Markman hearing.

Phillips, 415 F.3d at 1314.[2]

B.   Expert Witnesses

With respect to expert witnesses, courts apply Rule 702 of

the Federal Rules of Evidence and evaluate whether the testimony

is helpful and the credibility of the witness, and considers

whether proffered opinions meet the standards set forth in

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[2] The Federal Circuit directed that courts should use dictionaries when
necessary and useful, but with appropriate caution. See Innogenetics, 512
F.3d at 1371 (citing Phillips for its cautionary language regarding elevation
of dictionaries to such prominence that it focuses the inquiry on the
abstract meaning of the words rather than the meaning of claim limitations).

Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579

(1993). Rule 702 provides:

> A witness who is qualified as an expert by knowledge,
> skill, experience, training, or education may testify
> in the form of an opinion or otherwise if: (a) the
> expert's scientific, technical, or other specialized
> knowledge will held the trier of fact to understand
> the evidence or to determine a fact in issue; (b) the
> testimony is based on sufficient facts or data; (c)
> the testimony is the product of reliable principles
> and methods; and (d) the expert has reliably applied
> the principles and methods to the facts of the case.

Fed. R. Evid. 702. In addition, a court should not consider

mere ipse dixit of an expert--that is, conclusory statements

without analytical basis. Country Rd. Music, Inc v. MP3.com,

Inc., 279 F. Supp. 2d 325, 330 (S.D.N.Y. 2007).

The Court will review the qualifications and testimony of

both experts further below. For the moment, suffice it to say,

in this matter, the Court found that both Dr. Michael Ian Shamos

(for plaintiff) and Dr. James Storer (for defendants) provided

helpful testimony. However, given the nature of the patents-in-

suit, which relate to data compression and decompression

techniques, this Court found Dr. Storer's expertise--of several

decades spent focusing on compression and decompression

technologies--is particularly relevant and therefore

particularly useful to construing the terms at issue.

II. EVIDENCE RELEVANT TO THE CONSTRUCTIONS AT ISSUE

In connection with construing the claims at issue in this

matter, the Court has referred to both intrinsic and extrinsic

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evidence.   The Court's primary tool was, as the law requires,

the language in the claims and the specifications of the

patents-in-suit, the prosecution history relating to those

patents (including statements by the patent examiner), and the

specifications and prosecution history of related patents.

Prior to the Markman hearing, the parties submitted

technical tutorials to explain to the Court how one of ordinary

skill in the art would understand the inventions set forth in

the patents-in-suit.   (See 11 Civ. 6696, Minute Order (Apr. 24,

2012) (regarding submission of 2 DVDs by defendants and 1 thumb

drive by plaintiff).)   At a conference prior to the Markman

hearing, the Court notified the parties that if they wanted the

Court to rely upon such tutorials as a form of extrinsic

evidence (the equivalent of testimony or affidavit from an

expert), they should take that into consideration in how they

presented the tutorials (e.g., through an expert or through a

lawyer).   (Tr. 61:2-15, 62:14-20 (Apr. 16, 2012) (11 Civ. 6696,

Dkt. No. 429).)   If a tutorial was submitted as a type of expert

submission, the other side would be (and was) provided an

opportunity to cross-examine the expert at the Markman hearing

itself.   (Tr. 62:3-5, 62:16-20 (Apr. 16, 2012)).

Both parties put forth experts in support of their proposed

constructions.   Plaintiff's expert, Michael Ian Shamos,

submitted declaration. (11 Civ. 6697, Dkt. No. 565 ("Shamos

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Decl.").)   Dr. Shamos is the Distinguished Career Professor in the School of Computer Science at Carnegie Mellon University, where he teaches graduate courses and where he was a founder and Co-Director of the Institute for eCommerce.   (Shamos Decl. ¶ 2.) He also founded two computer software development companies between 1979 and 1987.   (Id. ¶ 3.)   He has also previously testified in cases concerning "electronic auctions and electronic payment system[s]."   (Id. ¶ 6.)

For defendants, Dr. James Storer provided, as mentioned above, a video tutorial as well as live testimony.   Dr. Storer is currently a professor of computer science at Brandeis University, where he teaches graduate and undergraduate level courses and where the focus of his research has been data compression.   Tr. 71:11-20 (May 4, 2012).   Dr. Storer published his first book on data compression, Data Compression Methods & Theory, in 1988.   Tr. 72:4-9.   Dr. Storer was also intimately involved in the creation of the IEEE Data Compression Conference which first took place in 1991, and has been its chair since its inception--and where he is a review of all papers presented at the conference.   Tr. 73:11-15, 73:21-74:6.   It was clear from his testimony that Dr. Storer has been researching--and involved in the development of the field of--data compression since it "exploded" in the late 1980s.   Tr. 73:2-10.

Both experts appeared live at the Markman hearing, answered questions posed by the Court, and were subject to cross-examination.

Defendants chose to designate the portion of their video tutorial narrated by Dr. Storer as proffered expert testimony. Finding Dr. Storer qualified as an expert, one skilled in the art, and his testimony helpful, this Court has, where indicated, relied upon that video tutorial, among other forms of evidence, when it needed to refer to extrinsic evidence to construe a term.

Plaintiff chose to submit their tutorial from Dr. Shamos only as background and not as evidence. As an evidentiary matter, therefore, this Court has not considered plaintiff's tutorial to constitute anything more than legal argument.

III. THE CONSTRUCTIONS

A.   Data Stream/Stream of Data

The parties agree on the first portion of the proposed construction for the phrases "data stream" or "stream of data": "one or more data blocks transmitted in sequence." Defendants, however, have suggested additional language which would follow this initial statement: "from an external source whose characteristics are not controlled by the data encoder or decoder." (11 Civ. 6696, Dkt. No. 489.) The Court agrees with defendants' proposed construction. The Court's determination is

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based upon the fact that Realtime has previously asserted either the substance of, or the precise words of, defendants' construction in multiple re-examination proceedings relating to one of the patents-in-suit (i.e., the '568 Patent) as well as other related patents.

The specification of the patents that were subject to the reexamination have a specification that is identical to the '747 patent-in-suit (those patents are the '506, '761, and '992 Patents). In turn, the specification of the '747 Patent is incorporated by reference into the two other patents-in-suit-- the '568 and the '651 Patents.

Exhibit 10 to the Declaration of Michael Murray in Support of Defendants' Opening Brief on Claim Construction Issues ("Murray Decl." (11 Civ. 6697, Dkt. No. 563)) comprises a series of submissions made by plaintiff and various experts retained by plaintiff setting forth definitions of "data stream" consistent with that proffered by defendants here. For instance, Dr. George T. Ligler submitted five separate declarations spanning the period from August 2009 to December 2010, and Dr. James Modestino submitted four declarations spanning the period from March 2010 to July 2011. (Murray Decl. ¶ 11 & Ex. 10.)

Plaintiff seeks to distinguish those declarations on the basis that they are defining the phrase "receiving a data stream." That argument reads the declarations too narrowly and

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ignores the plain language in the declarations themselves.   It

is certainly true that the declarations refer to the term

"receiving"--but they do so in the context of defining the term

"data stream".   An issue on reexamination was, in part, that

certain prior art used the term "data stream" in manner that

might have otherwise captured plaintiff's invention.   In

describing why and how its invention was distinguishable from

prior art, plaintiff explained that the concept of "receiving"

was imbedded within the use of the term "data stream."

    The Modestino Declaration submitted on March 15, 2010

(attached as part of Exhibit 10 to the Murray Declaration) is

illustrative.   (See Murray Decl. Ex. 10.)   In his declaration

Dr. Modestino stated, "The context provided by the '506

specification [as stated above, the specification of the '747

patent-in-suit is the same as the specification of the '506

patent, and the '568 and '651 patents-in-suit are incorporated

by reference into the '747 Patent] makes it clear to one of

ordinary skill in the art that the use of the term 'data stream'

was intended by the inventor to convey a continuous stream of

data elements received from or transmitted." (Murray Decl. Ex.

10 (Modestino Decl. (Mar. 15, 2010) at 3).)   Dr. Modestino then

discusses how compression occurs once data is "received" and

states that it was the "inventor's clear intent to convey that

by the term 'data stream' a continuous stream of data elements

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to be received or transmitted was intended."   (Id.)   He then

offers the following definition:

> A person of ordinary skill in the art would consider
> the phrase 'receiving a data stream' to imply a stream
> of data transmitted from a source (whose
> characteristics are therefore not controlled by the
> data compression system) and received at the input of
> a system or device. As noted above, in the context of
> the '506 patent, one of ordinary skill in the art
> would consider a data stream as a continuous stream of
> data elements to be received or transmitted.
> Furthermore, the process of receiving a data stream,
> represented by a sequence of data blocks, is generally
> considered a passive one requiring no control over the
> characteristics of the received data stream by the
> receiver . . . .

(Id.)   Dr. Modestino then stated, "if the disclosed compression

system did participate in the transmission of the received data

stream it would be an important feature of the invention and

would require some discussion in order for someone to

successfully practice the invention."   (Id.)

Similarly, in Realtime's "Reply to the [PTO] Action in

Reexamination," dated July 8, 2009, it draws distinctions

between its invention and the prior art of Baker, asserting that

plaintiff's invention there at issue, a "compression card," uses

the term "data stream" to incorporate the process of passive

receipt.   (Murray Decl. Ex. 10 (Reply to Office Action in

Reexamination (July 8, 2009) at 70).)   Other patents that were

part of reexamination proceedings incorporate the disclosure of

the great-grandparent of the '747 Patent--declarations submitted

in those reexaminations propose similar constructions of "data

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stream."   Exhibit 10 of the Murray Declaration contains a number
of similar examples.

Realtime has argued that it should not be held to prior
positions set forth in these declarations because it "retracted"
the legal arguments in a filing made with the Patent and
Trademark Office ("PTO").   According to Realtime, by retracting
its arguments, it made it clear (publicly) it would not be
relying on those positions.   Realtime concedes that it was
procedurally unable to remove the expert declarations (contained
at Exhibit 10 of the Murray Declaration) filed on the PTO's
public docket.   Tr. 205:17-25 (May 4, 2012) (11 Civ. 6697, Dkt.
No. 616) (Markman Hr'g).   Realtime's retraction was therefore
only partial: it retracted legal arguments and not factual
positions made by those skilled in the art.

It is certainly reasonable for this Court and the public to
rely upon the declarations of those who profess to be skilled in
the art regarding their opinions as to the meaning of certain
terms, particularly with respect to "sibling patents"--i.e.,
patents deriving from the same parent patent.   Presumably,
neither skill in the art nor opinions based thereon change
because of a party's retraction or legal arguments.
Accordingly, the Court finds that plaintiff's assertions in
declarations of related patents are alone sufficient to support

adoption of defendants' construction.   There is, however,

additional support for such adoption.

Plaintiff argues that its construction is consistent with

that which it put forth and which the court adopted in

litigation involving related patents, Realtime v. Packeteer, No.

6:08-cv-144-LED-JDL (E.D. Tex.) (the "Packeteer litigation").

It is demonstrably the case that plaintiff did propose the same

construction in Packeteer that it proposes here.   However, its

proposed construction in Packeteer occurred in July 2009--before

the declarations submitted in the reexamination proceedings

discussed above.

Moreover, plaintiff has also commenced litigation against a

number of companies in which it is asserting related patents,

Realtime Data, LLC v. MetroPCS Texas, LLC, No. 6:10-cv-49 (E.D.

Tex.) (the "MetroPCS litigation").   There, plaintiff has

proposed a construction of "data stream" consistent with that

set forth in its expert declarations referred to above.   In a

similar effort to distinguish its position in MetroPCS from that

here, plaintiff argues that the term in MetroPCS is "receiving a

data stream" and not merely "data stream."   Tr. 197:16-198:15

(May 4, 2012).

Positions taken as to claim construction in MetroPCS are

certainly relevant to claim construction here.   That litigation

involves the '506 Patent--which, as stated above, shares a

specification with the '747 patent-in-suit, and the '568 and

'651 patents-in-suit are incorporated by reference into the '747

Patent. At the April 12, 2012 Markman hearing in the MetroPCS

litigation, Realtime's counsel there (different from counsel of

record in the matter before this Court) argued that "the claim

system cannot actively control the characteristics of the

received data if that data is still part of a data stream," see

Tr. 207:5-7; (see also Murray Decl. Ex. 40 at 66:5-13); and also

that "the data must be transmitted from an external source and

cannot be retrieved from an internal part of the receiving

system," see Tr. 207:7-9.

As a matter of law, claim terms appearing in related

patents should generally be construed consistently across them.

See Omega Eng'g Inc. v. Raytek Corp., 334 F.3d 1314, 1334 (Fed.

Cir. 2003).

B.   Encoder(s), Encode, Encoded, Encoding

Plaintiff has offered the following construction for the

terms encoder(s), encode, encoded, and encoding: "hardware or

software that performs data compression." (Dkt. No. 489.)

For the term "encoder," defendants have slightly different

language regarding compression and add a significantly different

concept thereafter: "hardware or software that compresses data

by converting the contents of a data block (or data field) into

a coded representation of those contents." For the terms

"encode/ed/ing," defendants' construction is "compress/ed/ing by converting the contents of a data block (or data field) in a coded representation of those contents."   (Dkt. No. 489.)

At its core, the difference between the two constructions is that plaintiff's construction makes the term "encoding" (and derivations thereof) synonymous with "compression."   That is, all compression is encoding (but it is not at all clear that even plaintiff would argue that all encoding is the equivalent of compression).   Defendants' position requires that there be a "coded" representation of the contents of what is being compressed.   Put another way, for the defendants, compression may encode, but it may not--and to encode there must be some form of coding.   The Court agrees with defendants' construction.

First, during the patent reexamination process for a related patent (the '274 Patent), Examiner Hughes found that "to encode" requires some form of coding.   (See Murray Decl. Ex. 17 at 33-34.)   Importantly, the '274 Patent has the same specification as the '568 and '651 patents-in-Suit.   According to Examiner Hughes, no change in the representation of the data is "not encoding."   (Id.)   As a matter of law, Examiner Hughes acts from the viewpoint of one skilled in the art.   See St. Clair Intellectual Prop. Consultants, Inc., 412 Fed. Appx. at 276; In re Lee, 277 F.3d at 1345.   Her statements, as part of the prosecution history of related patents, are intrinsic

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evidence upon which the Court can rely. See Phillips, 415 F.3d
at 1317.

Plaintiff argues that this Court should ignore the
statements by Examiner Hughes because it had withdrawn the
claims to which these remarks referred, but that Examiner Hughes
had ignored such withdrawal and proceeded to disagree with
Realtime's arguments. This Court is not persuaded by that
argument. Statements of a patent examiner in reexamination are
necessarily part of the prosecution history of a patent; that is
a separate point from whether a party has put forward a position
in the context of prosecuting a patent that is later adopted.
Furthermore, in connection with resisting a request for a stay
of this matter, plaintiff supported Examiner Hughes'
qualifications as one skilled in the art. (See Decl. of Robert
Molitors in Opp'n to CME's Mot. for a Stay (11 Civ. 6697 (under
seal)) ¶¶ 18-21.)

In addition, however, the extrinsic evidence is also
supportive of defendants' position. First, the specialized
dictionaries used by those skilled in the art also use the word
"code". (See Murray Decl. Exs. 19-20.) In addition, Realtime
itself defined this term (and derivations thereof) as requiring
coding in its own definitions of those terms in litigation
papers in this case. (See Murray Decl. Ex. 35 ("encode . . .
means to express data or a message in terms of a code . . .").)

Finally, this Court credits the testimony of Dr. Storer who has spent most of his career in the field of compression/decompression techniques. Dr. Storer testified credibly that one skilled in the art would understand "encode," "encoding" and derivations thereof, as requiring some form of "coding," not simply compression.

The most significant example to which both plaintiff's and defendants' expert returned was whether the act of "throwing data away" as part of a compression process could constitute a form of "encoding". See, e.g., Tr. 92:10-13 (May 4, 2012) (Storer: "But the act of throwing something away, just that act by itself, the act of throwing away data, that's not encoding. The encoding is the fact that you actually produced something that you could decode and get back the original."). According to Dr. Storer, the word "encoding" "has had a very well-understood technical meaning since 1948, when Shannon at Bell Labs started talking about coding theory. It certainly means taking an input and producing an output, an output that typically is different." Tr. 96:16-19 (May 4, 2012).

Plaintiff's witness, Dr. Shamos, agreed that "[o]utside of these patents, encoding does not necessarily mean compression at all." Tr. 25:2-3 (May 4, 2012). He also agreed that when data is encoded, its representation has been changed. Id. The difference between Dr. Shamos and Dr. Storer is that for Dr.

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Shamos, simply making a data block smaller (e.g., compressing it) equates in the patents-in-suit with a type of changed representation that is "encoding." This Court construes "coding" as requiring a change in representation, not simply "no change." This means that simply making something smaller, or throwing data away, is not coding. That is consistent with Examiner Hughes and Dr. Storer; it is frankly unclear whether it is consistent with Dr. Shamos who seemed to take various positions on this issue. To the extent that Dr. Shamos testified that throwing data away or "no change" could constitute "coding" or "encoding," the Court declines to credit that testimony as reliable.

The parties have suggested constructions for the terms "decoder(s)," "decode," and derivations thereof that are the mirror opposites of their "encode" equivalents. Therefore, this Court construes decoder(s), decode and derivations thereof consistent with defendants' position: "Decoder: hardware or software that decompresses data by reconstructing encoded data"; and "Decode/ed/ing: decompress/ed/ing by reconstructing encoded data."

C.   Data Field Type[s], Data Block Type[s]

Plaintiff urges that the term "data field type" or "data block type" be construed to mean "an attribute or characteristic of the data block or data field." (Dkt. No. 489.) Defendants,

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on the other hand, urge a very different construction:

"categorization of the data in the field (or block) as one of

ASCII, image data, multimedia data, signed and unsigned

integers, pointers, or other data type."   (Id.)

The essential difference between the two constructions is

that plaintiff's is broad enough to capture any characteristic

or any attribute of data. In other words, for plaintiff, a

single parameter or value of data could fall within the

definition of "data field type" or "data block type." Plaintiff

urges that defendants' construction requires a content check or

analysis.

According to defendants, their proposed construction is

based upon--and limited to--the type of data within a data

block--that is, its content. Therefore, for defendants, a "data

block type" is synonymous with a "type of data block"; a "data

field type" is synonymous with a "type of data field."

Defendants' proposed construction refers to content as types

such as ASCII, image data, "or other data type." According to

defendants, their inclusion of the phrase "or other data type"

allows for an expansive reading of this term to include data

types that might not be listed but would be fairly encompassed

by the invention. The Court construes the term consistent with

defendants' construction.

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Throughout the patent specifications for the patents-in-suit, it is clear that the type of data is what is being referred to when the phrase "data type" is used. There are too many examples of this to list them all. The only place that the words "data **block** type" or "data **field** type" are used is in the claims. As a matter of law, it is proper for the Court to look to the specification to construe the claims; the claims themselves do not shed any independent light on the issue. Review of the specifications leaves no doubt that defendants' proposed construction is the proper one. This was confirmed by Dr. Storer, as one skilled in the art.

For instance, the term "data field type" is used in claim 1 of the '568 Patent. There, the term is used to describe the compression technique as "recognizing a data field type of a data field in the data stream, wherein the data field is included in a packet." Claim 20 states, in part, "outputting an executable file that is used to process a stream of data by recognizing data field types in the data stream and applying encoders associated with the recognized data field types to encode the data stream." Both claims clearly reference content analysis of the type suggested by defendants.

In claim 14 of the '747 Patent, the term is used in the following manner: "analyzing content of the data block to determine a data block type"--the claim then proceeds to

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describe the selection of the encoder based on that analysis

(claim 19 of the '747 Patent describes "data block type"

similarly). In claim 1 of the '651 Patent the term is used to

mean, among other things, "wherein the description file

comprises data field types and associated lossless decoders."

In both cases, again, the analysis of the content and the use of

that information as to type of data is what is being claimed.

Plaintiff argues that a "data block type" or "data field

type" can constitute simply an attribute of data--that is, the

expression of even a value of data. Dr. Storer testified

credibly as one skilled in the art that checking a value is not

determining a data block type or data field type. The intrinsic

evidence does not support the narrow construction proposed by

plaintiff. It is clear from the intrinsic evidence alone, and

further supported by the credible extrinsic evidence, that "data

field type" or "data block type" refers to a content

categorization which is then identical to the invention.

D.   <u>Lossless, Lossless Encoder/decoder</u>[3]

Both parties concede that the compression/decompression of

financial data must be lossless. The dispute over construction

of the term "lossless" centers upon whether the phrasing

plaintiff has proposed can, should or does leave some ray of

light for encoding/decoding to be equivalent to lossless

techniques.

The constructions offered by the parties call into question

whether a "lossless" encoder or decoder is one that requires

that the encoder enable the decoder to present data that is

identical to that which was encoded, versus an "exact

representation" of what was encoded. The distinction is whether

a process which encodes data by dropping certain data, but which

indicates what has been dropped (say, ten zeros), and therefore

is an "exact representation" of the original data (if for

instance, the ten zeros are not meaningful to the recipient), is

"lossless"--or whether "lossless" requires identicality in the

most objective sense.

_____

[3] Plaintiff has moved for leave to supplement the record with regard to the
term "lossless." (Dkt. No. 469.) Plaintiff argues that until the Markman,
it had not understood that any argument was being made that the
encoding/decoding techniques set forth in the inventions were "lossy." The
Court finds this argument unpersuasive and denies the motion. The parties
certainly knew that the terms "lossless" was one of those to be construed--
and that the essential difference between the parties reduced to whether
identicality was required in the most traditional sense. Indeed, Dr.
Storer's video tutorial itself laid out the distinction which defendants'
argued at the Markman hearing. Resolution of that issue determines the
appropriate construction--not whether in fact the merits would one day show,
or not, that the techniques are "lossy".

There is nothing about the claims or specifications which indicate that the patentee was defining lossless in a manner unique to his patent(s). Indeed, the patentee repeatedly refers to lossless compression techniques "well known in the art." The claims and specifications indicate that the term "lossless" is used as one of ordinary skill in the art would use the term. Accordingly, this Court looks to the intrinsic and extrinsic evidence to determine what the term "lossless" means to one of ordinary skill in the art at the time the invention was made.

The Court finds that the extrinsic evidence indicates that the term "lossless" has the specific meaning of "identical" to one skilled in the art at the appropriate time. According to one skilled in the art, Dr. Storer, and a number of references to which defendants refer, that term means that when an encoder is lossless, literally and truly, nothing at all is lost; put another way, a "lossless" process exercises zero discretion as to whether the data is required or even useful, it must be identical. An encoder cannot, therefore, choose what data to drop and to represent it otherwise, and still be "lossless"-- that changes the typical and accepted meaning that one of ordinary skill in the art would attribute to the term.[4] It certainly might be the case that a type of "lossless equivalent"

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[4] Anything short of this would or could require subjective judgments regarding whether particular content is meaningful. Lossless techniques are not intended to have subjectivity in representation. (See, e.g., Storer Tutorial at 21.)

encoding technique could be invented--but the term "equivalent"
would then specify that the lossless-ness would not in fact be
literal. That term was not used here--the term as understood by
those skilled in the art "lossless" was--and that term has but
one meaning: "identical."

In the specification of the '747 Patent (2:6-9), "lossless"
is defined: "lossless data compression techniques provide an
exact representation of the original uncompressed data. Simply
stated, the decoded (or reconstructed) data is identical to the
original unencoded/uncompressed data." (Emphasis added.) That
language indicates that "exact representation" does not allow
for anything less than identical. Thus, to the extent that
plaintiff has proffered a construction that suggests just that,
it goes beyond the specification itself.

In addition, the extrinsic evidence supports identicality
and not "mere representation" (when allowing for anything less
than identicality). In three texts on data compression, lossless
is described with different words but to the same effect:

1.   In Compression in Video and Audio, the author states,
      "In lossless encoding, the data from the expander are
      identical bit-for-bit with the original source data .
      . ." (Murray Decl. Ex. 23).

2.   In The Data Compression Book, the author states,
      "Lossless compression consists of those techniques

guaranteed to generate an exact duplicate of the input

data stream after a compress/expand cycle."   (Murray

Decl. Ex. 24).

3.   In <u>Video Compression: Fundamental Compression</u>

<u>Techniques and an Overview of the JPEG and MPEG</u>

<u>Compression Systems</u>, the author states, "[in lossless

decompression] we get the same data we started with,

exactly and precisely."   (Murray Decl. Ex. 25.)

As Dr. Storer stated during the tutorial submitted to this

Court,

> Lossless and Lossy are terms that are well known terms
> in the data compression area and have very particular
> and specific meanings. Lossless compression is
> compression that preserves each and every bit of the
> original data. If the results of decompression have
> even a single bit changed from the original, even if
> that bit has no importance, no matter how close the
> new representation is to the original, it is simply
> not lossless. Lossless is an absolute term that has
> been understood as such by those in the art, without
> ambiguity, for decades. Lossy compression, on the
> other hand, only preserved an approximation of the
> original.

(Storer Tutorial at 21.)

E.   <u>Selecting an Encoder, the Lossless Encoders are</u>
      <u>Selected, Selecting One or More Lossless Encoders,</u>
      <u>Select one or More Lossless Encoders</u>

"In any compression or decompression system, it is critical

that the decoder know how the data was encoded so that the

decoder can use the right decompression algorithm on the encoded

data. Otherwise, the result will be corrupt."   (Storer Tutorial

at 28.)   The parties offer disparate constructions, the
essential difference between them being the temporal moment of
encoder selection.   Plaintiff supports variations of a
construction such as "choosing hardware or software that
performs data compression," "techniques, hardware or software
that provide exact representation of the original uncompressed
data are chosen", and "choosing one or more techniques, hardware
or software that provide an exact representation of the original
uncompressed data."   (Dkt. No. 489.)   Plaintiff's construction
therefore leaves open the question of when the encoder is
selected.

Defendants proffer: "choosing (or choose) an encoder (or
lossless encoders) during the compression process based on
analyses of the content of the data blocks (or data fields)."
(Id.)

The intrinsic and extrinsic evidence supports defendants'
construction, which this Court adopts.   The Court finds that it
will be important to the jury to have this additional
clarification when determining fact issues at trial.   First, the
claims of both the '747 and '651 Patents require that the
encoder selection be based on "analyses of content of the data
block/fields."   ('747 Patent at 26:28-30, 27:2-4, 27:50-53,
28:29-32; '651 Patent at 24:66-25:2, 25:55-58, 26:35-38, 27:39-

42, 29:9-12.)   Thus, it must be that encoder selection is proximate to content analysis.

Second, during the reexamination proceedings, plaintiff also stated, "The '651 patent clearly supports that the content of the data blocks must be analyzed to select the proper encoder." (Murray Decl. Ex. 8 at 24.)   In distinguishing prior art, plaintiff stated, "Carr fails to analyze a data field in order to recognize the data field type . . . .   Therefore, Carr fails to disclose selecting an encoder associated with the recognized data field type."   (Murray Decl. Ex.7 at 24.)   Again, in both of those instances, selection is proximate to content analysis.   Content analysis occurs only once the data stream has been received--it is not far removed in time.   It is a necessary piece of determining whether content dependent/independent compression occurs; and therefore, which encoder is selected as most useful.

Given the language in the specifications and the prosecution history, it is appropriate and necessary to construe the selection of the encoder as occurring during the compression process.   To suggest that the encoder selection could occur well before that, would be to eliminate all references to the words and concepts repeatedly referring to content analysis and reference throughout in the specification and prosecution history--this would not be appropriate.   See Phillips, 415 F.3d

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at 1315 (words in the specification must read as part of a "fully integrated written instrument"). Such a construction would also create unnecessary ambiguity regarding how content dependent/independent compression relates to the selection of the encoder.

Here, again, plaintiff argues that its positions in the prosecution history for the '568 Patent should be ignored since they were not persuasive and withdrawn. As discussed above, that argument is not compelling. As a matter of law, positions taken before the PTO need not be successful in order to be binding; and withdrawing arguments does not eliminate the fact that the positions were taken by the patentee as one skilled in his own art.

There was extensive argument at the Markman hearing regarding whether there is a philosophical question regarding when the compression process begins. This Court finds that based on the claims, specifications and testimony of Dr. Storer (which the Court credits), it is clear that when the claims use the phrase "selecting an encoder" it is necessarily done based on an analysis of the content of the data block, during the compression process.

F.   Content Independent Data Compression/Content Dependent
     Data Compression

The constructions offered by the parties as to the terms "content independent data compression" and "content dependent

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data compression" have little to do with how to understand those
terms--in other words, the parties are not truly debating what
the terms mean.   Rather, their debate is one of chronology:
whether content dependent data compression occurs first, and,
therefore whether content independent data compression only
follows if that first technique is unsuccessful.

Accordingly, claims construction in this instance--which
will certainly assist the jury in making its factual
determinations later--requires deciding "when" the
dependent/independent compression occurs.

Defendants offers the following construction for "content
independent data compression":   "compression that is applied to
input data that is not compressed with content dependent data
compression, the compression applied using one or more encoders
without regard to the encoder's (or encoders') ability to
effectively encode the data block type (or data field type)."
(Dkt. No. 489 (emphasis added).)   Plaintiff argues that the term
means: "compression that is applied using one or more encoders
without regard to the encoder's (or encoders') ability to
effectively encode the data block type (or data field type)."
(Dkt. No. 489.)

For "content dependent data compression," plaintiff
construes the term as "compression that is applied using one or
more encoders selected based on the encoder's (or encoders')

ability to effectively encode the data block type (or data field type)," while defendants construe it as "compression that is applied to input data that is not compressed with content independent data compression, the compression using one or more encoders selected based on the encoder's (or encoders') ability to effectively encode the data type of the data block." (Dkt. No. 489.)

The claims and specifications, along with the credible testimony of Dr. Storer as one skilled in the art who can interpret that intrinsic evidence, makes it clear that content dependent compression occurs first--and if the content is recognized (i.e., if the data is recognized as ASCII, an appropriate encoder is then selected), content independent compression occurs if content is not recognized. The Court has tried mightily to read the claims and specifications to allow for the simultaneous or seriatim application of both compression techniques, but has found no support for such a construction. While the '651 and '568 Patents do have some usage of the word "sequential" (see, e.g., '651 Patent at 15:55; '568 Patent at 16:47), that word is used in connection with applications of a compression technique to portions of data blocks with different content type (e.g., ASCII and MPEG); and cannot reasonably be read to describe a data block first going through content

independent compression and then going through content <u>dependent</u> compression; and of course, this would make no sense.

Plaintiff seems to suggest, however, that the opposite might occur--that content dependent compression might be tried and then content independent compression tried--but that ignores the clear step of content analysis that precedes the compression process, which step determines which paths the data follows: into dependent or independent compression. (<u>See, e.g.</u>, '747 Patent at claim 1; '651 Patent at claim 1; '568 Patent at claim 1.)

The phrases "content independent/dependent decompression" are, according to plaintiff, the reverse of the compression technique. According to defendants, these phrases are indefinite under 35 U.S.C. § 112. That argument is, as mentioned above, the subject of a separate summary judgment motion. The Court declines to construe these terms at this time, but addresses it in a separate decision on the summary judgment motion.

G. <u>Descriptor with the Encoded Data which Identifies, Descriptors Indicate, Descriptor Indicates</u>

As part of the invention at issue, neither party disputes that a descriptor is associated with a data block (for instance, to indicate which compression technology was used). The issue this Court must determine is whether that descriptor must be

physically attached or appended to the data, or can be associated with the data in some other fashion.

According to plaintiff, the proper construction is "a data token with the encoded data which identifies" or "data tokens indicate" or "data token indicates." Only the first of these constructions has the data token "with" the encoded data.

Defendants suggest the following construction: "recognizable data that is appended to the encoded data for specifying."

This Court finds that the claims and specifications make it clear that the descriptor must be "with," in the sense of "attached to," the encoded data. Thus, constructions which suggest that the descriptor can be detached from, or found elsewhere than "with" the encoded data, are not appropriate. The Court therefore adopts defendants' proposed construction.

The Court's construction is consistent with multiple references in the claims themselves in which the descriptor is indicated as being "with" or "appended to" the data. Moreover, seven flow charts of the '747 Patent (Figs. 3b, 5b, 7b, 10b, 14C, 16C and 18C), all show the step of "**append** null descriptor to an unencoded input data block" or "**append** corresponding descriptor" to an encoded data block, followed in each case with the step of "output . . . data block with . . . descriptor." While it is certainly true that plaintiff is not limited to the

embodiments set forth in the specifications, it is limited to the invention set forth in the specifications and claims. There is no support in the specifications or claims for the descriptor to be completely detached from the data block.

There was a fair amount of debate at the Markman hearing as to whether use of the word "append" could not be a proper part of the construction since it suggests that the descriptor would follow or come after the data had arrived at the decoder. According to Dr. Shamos, to one skilled in the art, "append" means at the end and "prepend" means at the beginning. Tr. 60:22-25 (May 4, 2012).

First, the specifications use the word "append" numerous times in connection with the placement of the descriptor. (See, e.g., '747 Patent at 4:13-15, 17-18; 7:62-67; in the '651 Patent: 16:36-38.) Second, Dr. Storer testified credibly that the actions described in the invention are occurring so quickly that it is irrelevant whether the descriptor is at the beginning or end of the data block, it is being processed at the same "time" either way. See Tr. 145:24-146:3, 146:14-22. In other words, it is not the placement of the descriptor which is of importance, but the fact that the descriptor must be with the encoded data in order for the invention to work in any of the manners described in or fairly encompassed by the specification.

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This is fully consistent with the intrinsic evidence as well as

the credible testimony of Dr. Storer.

Defendants also offer a construction of the terms

"Indicates or Indentifies" as used in this phrase.   The

specifications use these words interchangeably and this Court

construes them as synonymous. (See e.g. '747 Patent at 8:53-56,

18:63-66; '651 Patent at 16:23-26, 16:28-30.)

CONCLUSION

The claims at issue are construed as set forth above.   For

purposes of clarity, the Court provides the construction for

each of the disputed terms (except those that are the subject of

a separate summary judgment motion) below:

data stream, stream of data	One or more blocks transmitted in sequence from an external source whose characteristics are not controlled by the data encoder or decoder
encoder, encode, encoded, encoding	Encoder: hardware or software that compresses data by converting the contents of a data block (or data field) into a coded representation of those contents Encode/ed/ing: compress/ed/ing by converting the contents of a data block (or data field) into a coded representation of those contents
decoder, decode, decoded, decoding	Decoder: hardware or software that decompresses data by reconstructing encoded data Decode/ed/ing: decompress/ed/ing by reconstructing encoded data
data field type[s], data block type[s]	Categorization of the data in the field (or block) as one of ASCII, image data, multimedia data, signed and unsigned

	integers, pointers, or other data type
lossless, lossless encoder(s)/decoder(s)	Technique, software, or hardware that fully preserves the original unencoded data such that the decoded data is identical to the original unencoded data
selecting an encoder, the lossless encoders are selected, selecting one or more lossless encoders, select one or more lossless encoders	Choosing (or choose) an encoder (or lossless encoders) during the compression process based on analyses of content of the data blocks (or data fields)
content independent/dependent data compression	Content independent data compression: compression that is applied to input data that is not compressed with content dependent data compression, the compression applied using one or more encoders without regard to the encoder's (or encoders') ability to effectively encode the data block type (or data field type) Content dependent data compression: compression that is applied to input data that is not compressed with content independent data compression, the compression using one or more encoders selected based on the encoder's (or encoders') ability to effectively encode the data type of the data block
descriptor with the encoded data which identifies, descriptors indicate, descriptor indicates	Recognizable data that is appended to the encoded data for specifying

Plaintiff's motion for leave to supplement the record on claims construction is DENIED.

The Clerk of the Court is directed to terminate the motion at Docket No. 469 in 11 Civ. 6696, Docket No. 618 in 11 Civ. 6697, and Dkt. No. 349 in 11 Civ. 6698.

SO ORDERED:

Dated: New York, New York
           June 22, 2012

                                    _____
                                    KATHERINE B. FORREST
                                    United States District Judge

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